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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,023	03/26/2004	Zhaofu Hu		8416

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EXAMINER	
CANNING, ANTHONY J	
ART UNIT	**PAPER NUMBER**
2879	

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/810,023	HU ET AL.	
	Examiner	Art Unit	
	Anthony J. Canning	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) *6-17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Acknowledgement of Amendment

1. The amendment to the instant application was entered on 2 May 2006.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al. (U.S. 5,534,743).

4. Regarding claim 1, Jones et al. disclose a barrier array for use in a flat panel display including: a shadow mask (see Fig. 7, item 28; column 6, lines 14-15) defining a plurality of openings (see Fig. 7, the region above item 36 where there is a gap in layer 28; lines 1-7 in the abstract) therethrough according to a predetermined pattern (lines 2-4 in the abstract say that the figure is formed via differential etching, which the examiner interprets as a predetermined pattern), the predetermined pattern being in accordance with a pixel pattern of a flat panel display, the shadow mask having an upper and lower surface (see Fig. 7, items 20, 22 and 28, specifically the layer 22 directly adjacent to item 14; column 6, lines 9-17) and an insulative including a first portion layer formed on the upper surface of the shadow mask (see Fig. 7, item 30; column 6, lines 15-16) and a plurality of second portions extending from the upper surface to

the lower surface through the respective openings (see Fig. 7, items 22, 24 and 30, the insulating portions 22 and 24, extend from the top of the metal layer and from the bottom of the metal layer to the emitter).

5. Regarding claim 2, Jones et al. disclose the barrier array as described in claim 1, wherein the shadow mask is made from a material selected from the group: invar, low carbon steel, or another suitable metal alloy. Item 28 of figure 7 corresponds to item 66 of figure 8. In column 10, line 17, it is disclosed that the perforated metal layer (items 28 and 66) is an electrode. Jones et al. disclose, in lines 23-27 of column 10 that any suitable material may be used in the layers and components of a flat panel display. In Table 1 (column 7), step 4 of the manufacturing process is of a conductor using the alloy of Cr-Cu-Cr, which is an appropriate metal for the perforated metal layer. The coefficient of thermal expansion of Cr-Cu-Cr[1] is close to that of glass[2], which is used as the substrate in the flat panel display of Jones et al..

6. Regarding claim 3, Jones et al. disclose the barrier array as described in claim 1, wherein the insulative layer comprises alumina or magnesia (column 6, lines 15-16). Jones et al. specify alumina.

7. 9. Regarding claim 18, Jones et al. disclose a barrier array for use in a flat panel display including: a metal plate (see Fig. 7, item 28; column 6, lines 14-15) including a plurality of openings (see Fig. 7, the region above item 36 where there is a gap in layer 28; lines 1-7 in the abstract) therethrough according to a pixel pattern of a flat panel display, the shadow mask having an upper and lower surface (see Fig. 7, items 20, 22 and 28, specifically the layer 22 directly adjacent to item 14; column 6, lines 9-17); and an insulative including a first portion

[1] 9.91PPM/K, according to Williams Advanced Materials company

layer formed on the upper surface of the shadow mask (see Fig. 7, item 30; column 6, lines 15-16) and a plurality of second portions extending from the upper surface to the lower surface through the respective openings (see Fig. 7, items 22, 24 and 30, the insulating portions 22 and 24, extend from the top of the metal layer and from the bottom of the metal layer to the emitter).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (U.S. 5,534,743).

As to claims 4 and 5, Jones et al. disclose the barrier array as described in claim 3. Jones et al. fail to disclose that the thickness of the insulative layer being between 10-500 μm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to disclose that the thickness of the insulative layer being between 10-500 μm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Response to Arguments

10. The examiner acknowledges amendments to claims 1, 2 and 18.

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[2] 9.93PPM/K, SiO_2-Na_2O (23% mol Na_2O) glass, Material Science and Engineering Handbook

11. Jones discloses that the areas above and below the shadow mask (item 28 in figure 7) are insulating or dielectric material. Therefore, they extend from the upper to the lower portion of the shadow mask through the openings, since they extend to the openings on the upper and lower portion of the shadow mask.

12. Dielectric materials are also insulating materials.

Contact Information

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Canning

15 May 2006

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